

Appl. No. : 10/642,952
Filed : August 18, 2003

AMENDMENTS TO THE CLAIMS

Please amend the Claim Form and Claim as follows. Insertions are shown underlined while deletions are struck through.

1-12 (canceled)

13 (currently amended): A method for producing dimethyl ether comprising:

obtaining an activated alumina catalyst by using as criteria its sodium oxide content and its average pore radius, wherein the sodium oxide content is 0.07% by weight or less and the average pore radius is no less than 2.5 nm to but less than 85.0 nm, said activated alumina catalyst having a pore volume of no less than 0.125 mL/g but no more than 0.45 mL/g; and

dehydrating methanol in vapor phase in the presence of the activated alumina catalyst, wherein no active component other than the activated alumina is added to the activated alumina catalyst, thereby producing dimethyl ether.

14 (previously presented): The method according to Claim 13, wherein the activated alumina catalyst is a γ -alumina catalyst.

15 (previously presented): The method according to Claim 13, wherein the sodium oxide content in the activated alumina catalyst is at most 0.05% by weight.

16 (previously presented): The method according to Claim 13, wherein the sodium oxide content in the activated alumina catalyst is at most 0.04% by weight.

17 (previously presented): The method according to Claim 13, wherein neither water nor steam is added in the dehydration step.

18 (canceled)

19 (previously presented): The method according to Claim 13, wherein the dehydration is conducted at a pressure of at least 0.0 MPa-G and at most 3.0 MPa-G.

20 (previously presented): The method according to Claim 13, wherein the dehydration is conducted at a pressure of at least 1.0 MPa-G and at most 2.5 MPa-G.

21 (canceled)

22 (canceled)

23 (canceled)

24 (currently amended): A method for producing dimethyl ether comprising:

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providing an activated alumina catalyst having a sodium oxide content of 0.07% by weight or less, and an average pore radius of no less than 2.5 nm ~~to but less than~~ 85.0 nm, and a pore volume of no less than 0.125 mL/g but no more than 0.45 mL/g; and

dehydrating methanol in vapor phase in the presence of the activated alumina catalyst wherein no active component other than the activated alumina is added to the activated alumina catalyst, thereby producing dimethyl ether at a conversion ratio of methanol to produce dimethyl ether, which ratio is increased as a function of the sodium oxide content and the average pore radius of the activated alumina catalyst.

25 (previously presented): The method according to Claim 24, wherein the activated alumina catalyst is a γ -alumina catalyst.

26 (previously presented): The method according to Claim 24, wherein the sodium oxide content in the activated alumina catalyst is at most 0.05% by weight.

27 (previously presented): The method according to Claim 24, wherein the sodium oxide content in the activated alumina catalyst is at most 0.04% by weight.

28 (previously presented): The method according to Claim 24, wherein neither water nor steam is added in the dehydration step.

29 (canceled)

30 (previously presented): The method according to Claim 24, wherein the dehydration is conducted at a pressure of at least 0.0 MPa-G and at most 3.0 MPa-G.

31 (previously presented): The method according to Claim 24, wherein the dehydration is conducted at a pressure of at least 1.0 MPa-G and at most 2.5 MPa-G.

32 (canceled)

33 (canceled)

34 (canceled)